UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>16 May 2008</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-12</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-12</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>02/25/2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☒ Some *   c)☐ None of:

       1.☒ Certified copies of the priority documents have been received.

       2.☒ Certified copies of the priority documents have been received in Application No. <u>JP2003-301573</u>.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-12 are pending for examination.

Claim Objections

2.   Claim 5 is objected to under 37 CFR 1.75(c), as being of improper dependent form for

failing to further limit the subject matter of a previous claim. Applicant is required to cancel the

claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the

claim(s) in independent form.

3.   Claim 8 is objected to because it is not clearly understood what is meant by "an

executable non idle process"? (i.e. ready process or process require scheduling?). it is a possible

112 2nd issue.

4.   Claim 11 is objected to because it is not clearly understood to which task does the priority

change? (i.e. OS that is executing as task, non idle process or idle process?) it is a possible 112

2nd issue.

Claim Rejections - 35 USC § 101

5.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

6.   Claims 9 is rejected under 35 U.S.C. 101 because the claims are directed to non-statutory

subject matter.

5.   As per claim 9, the claimed invention is directed to apparatus claim, but appearing to be

comprised of <u>software alone</u> without claiming the associated <u>computer hardware</u> required for

execution. For example claim 9 recite a determining unit and a changing unit, which are all

software modules /functions. Software alone is directed to a non-statutory subject matter.

Claim Rejections - 35 USC § 112

7.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

8.   Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

      a.   The claim language in the following claims is not clearly understood:

            i.   As per claim 1, line 7, "execution as the task under control of the

operating system", it is not clearly understood which task is referred to? (i.e. non-

idle process, idle process?) line 10, it is not clearly understood to which task the

priority is being changed to higher priority? (i.e. the operating system that

executing as a task or the non idle process? And if it is the operating system is the

OS raising its priority over the processes executing within it?) It is not clearly

understood the relation between "the task and the non idle process? Line 11, it is

not clearly understood to which task is referred to as having primary priority?

ii.   As per claim 9, It has the same deficiency as claim1.Further more, it is not

clearly understood what is meant by "an executable non idle process"?(i.e. ready

process or process require scheduling?).

iii.   As per claim 10, it has the same deficiency as claim 1. Further more, it is

not clearly understood what is meant by "executable processes "? (i.e. ready

process or process require scheduling?).

iv.   As per claim 8, line 2-3, it is not clearly understood which task is referred

to that is changing the priority from primary to higher? (The same operating

system referred to in claim 1?)

v.   As per claim 12, lines 3, it is not clearly understood "raising a priority of a

task" which task is referred to? (i.e. OS or one of process running under the OS

and if it is the operating system , is the OS raising its priority over the processes

executing within it?)

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

10.   Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al.

(US 2005/0149933 A1), in view of Herrington et al (US 4,435,780) and further in view of Fung

(US 5,892,959).

11.   As per claim 1, Saito teaches the invention substantially as claimed including a computer-

readable recording medium that stores a task control computer program including computer

executable instructions which when executed by a computer, cause the computer to execute an

operating system as a task by performing:

changing a priority of the task to a higher priority higher than a primary priority of the

task (Abs., lines 2-3; abs., lines 12-15; par. [0115]).

12.   Saito doesn't explicitly teach determining whether a non-idle process is included in

processes to be executed under control of the operating system that process is included in

processes to be executed under control of the operating system based on a process identifier

stored in a process control block (PCB) of processes to be executed under control of the

operating system, wherein the non-idle process is an executable process waiting for execution as

the task under control of the operating system, other than an idle process executed when the

operating system proceeds to an idle state; and

changing a priority of the task to a higher priority higher than a primary priority of the

task when it is determined at the determining that the executable processes include the non-idle

process.

13.   However, Herrington teaches that process is included in processes to be executed under

control of the operating system that process is included in processes to be executed under control

of the operating system based on a process identifier stored in a process control block (PCB) of

processes to be executed under control of the operating system, determining whether a non-idle

process is included in processes to be executed under control of the operating system (Fig. 5;

Col. 5, lines 65-68; col. 6, lines 1-10).

14.   It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine Saito and Herrington because Herrington teaching of content of PCB can

identify the status of any process, id and priority would improve Saito's system by providing the

information necessary for scheduling a task based on the status and the priority.

15.   The combined teaching doesn't explicitly teach that determining whether a non-idle

process is included in processes to be executed under control of the operating system ;

the non-idle process is an executable process waiting for execution as the task under

control of the operating system, other than an idle process executed when the operating system

proceeds to an idle state; and

changing a priority of the task to a higher priority higher than a primary priority of the

task when it is determined at the determining that the executable processes include the non-idle

process.

16.   However, Fung teaches that the non-idle process is an executable process waiting for

execution as the task under control of the operating system, other than an idle process executed

when the operating system proceeds to an idle state; and

changing a priority of the task to a higher priority higher than a primary priority of the

task when it is determined at the determining that the executable processes include the non-idle

process (col.55, lines 54-57; col. 56, lines 45-47; wherein executing non idle thread before idle

thread is giving a higher priority to non idle thread over idle threads).

17.   It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine Saito, Herrington and Fung because Fung teaching of giving a higher

priority to non idle thread over idle thread would improve the system by executing the OS with

the highest priority task first before going on idle which saves CPU resource and improve system

performance and scheduling techniques.

18.   The combined teaching doesn't explicitly teach determining whether a non-idle process is

included in processes to be executed under control of the operating system. However, it would

have been obvious to one of ordinary skill in the art at the time the invention was made to

conclude from the combined teaching and especially Fung teaching of executing the non idle

threads that require execution (waiting to be executed) before the idle threads that there is a way

to identify or determining that the non idle threads is waiting to be executed.

19.   As per claim 2, Saito teaches a system call that executes the determining and the

changing (Fig. 7, 184; par. [0141], lines 1-6).

20.   As per claim 3, Saito teaches changing the higher priority to the primary priority after the

operating system has been executed at the higher priority for a predetermined period of time (par.

[0111]; par. [0112]; par. [0113]; par. [0115], lines 5-8).

21.   As per claim 4, Saito teaches the determining comprises:

          determining whether a schedule request for one of the processes to be executed

under control of the operating system has been made to the operating system(Fig. 1; fig. 9); and

          determining whether an interruption request has been made to the operating system (fig.

12, 241,242)

22.   The combined teaching doesn't explicitly teach that determining whether a non-idle

process is executable under the control of the operating system. However, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to conclude from

the combined teaching and especially Fung teaching of executing the non idle threads that

require execution (waiting to be executed) before the idle threads that there is a way to identify

or determining that the non idle threads is waiting to be executed.

23.   As per claim 5, it has the same limitation as claim 1; therefore it is rejected under the

same rational.

24.   As per claim 6, Herrington teaches the determining whether the schedule request has

been made to the operating system is based on a schedule request flag stored in a process control

block of the one of the processes to be executed under control of the operating system (Fig. 5).

25.   As per claim 7, Saito teaches that the determining whether an interruption request has

been made to the operating system is based on an interruption request flag set when an

interruption to the operating system is required (fig. 3, lines 141; Fig. 12; Fig. 21, 177).

26.   As per claim 8, Saito teaches the primary priority of the task is changed to the higher

priority when a predetermined period of time has elapsed (par. [0115], lines 5-8).

27.   Saito doesn't explicitly teach that the priority change after it is determined that there is an

executable non-idle process. However, Fung teaches that he priority change after it is determined

that there is an executable non-idle process. (col.55, lines 54-57; col. 56, lines 45-47; wherein

executing non idle thread before idle thread is giving a higher priority to non idle thread over idle

threads).

28.   As per claim 9, it is the task control apparatus of the medium claim 1. It has similar

limitation therefore it is rejected under the same rational.

29.   As per claim 10, it is the task control method of the medium claim 1. Therefore, it is

rejected under the same rational.

30.   As per claim 11, Saito teaches changing the higher priority to the primary priority after

the operating system has been executed at the higher priority for a predetermined period of time

(par. [0111]; par. [0112]; par. [0113]; par. [0115, lines 5-8).

31.   As per claim 12, it has similar limitation as claim 1. Therefore it is rejected under the

same rational.

Response to Arguments

32.   Applicant's arguments with respect to claims 1-11 have been considered but are moot in

view of the new ground(s) of rejection.

Conclusion

33.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

US 6496848 B1 teaches Control method for control software execution system.

US 6996745 B1 teaches Process for shutting down a CPU in a SMP configuration.

US 5872962 A teaches Program control system.

34.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

35.   A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

36.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to CAROLINE ARCOS whose telephone number is (571)270-3151.

The examiner can normally be reached on Monday-Thursday 7:00 AM to 5:30 PM.

37.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

38.   Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Caroline Arcos/
Examiner, Art Unit 2195

/Li B. Zhen/
Primary Examiner, Art Unit 2194